```
import numpy as np
arr1=np.array([1,2,3,4,5])
print(arr1)
```

```
[1 2 3 4 5]
```

```
import numpy as np
arr2=np.array(28)
print(arr2)
```

```
28
```

```
import numpy as np
arr3=np.array([1,2,3,4,5])
print(arr3)
```

```
[1 2 3 4 5]
```

```
import numpy as np
arr4=np.array([[[1,2,3],[3,2,1],[4,5,6]]])
print(arr4[0])
```

```
[[1 2 3]
 [3 2 1]
 [4 5 6]]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4], ndmin=5)

print(arr)
print('number of dimensions :', arr.ndim)
```

```
[[[[[1 2 3 4]]]]]
number of dimensions : 5
```

```
import numpy as np

arr = np.array([1, 2, 3, 4])

print(arr[1]+ arr[2])
```

```
5
```

```
import numpy as np

arr = np.array([[1,2,3,4,5], [6,7,8,9,10]])

print('2nd element on 1st row: ', arr[0, 1])
```

```
2nd element on 1st row:  2
```

```
import numpy as np

arr = np.array([[1,2,3,4,5], [6,7,8,9,10]])

print('5th element on 2nd row: ', arr[1, 4])
```

```
5th element on 2nd row:  10
```

```
import numpy as np

arr = np.array([[[1, 2, 3], [4, 5, 6]], [[7, 8, 9], [10, 11, 12]]])

print(arr[0, 1, 2])
```

```
6
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7])

print(arr[1:5])
```

```
[2 3 4 5]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4])

print(arr.dtype)
```

```
int64
```

```
import numpy as np

arr = np.array([1, 2, 3, 4], dtype='S')

print(arr)
print(arr.dtype)
```

```
[b'1' b'2' b'3' b'4']
|S1
```

```
import numpy as np

arr = np.array([1, 2, 3, 4], dtype='i4')

print(arr)
print(arr.dtype)
```

```
[1 2 3 4]
int32
```

```
import numpy as np

arr = np.array([1, 2, 3, 4], dtype='i4')

print(arr)
print(arr.dtype)
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5])
x = arr.copy()
arr[0] = 42

print(arr)
print(x)
```

```
[42  2  3  4  5]
[1 2 3 4 5]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5])
x = arr.view()
arr[0] = 42

print(arr)
print(x)
```

```
[42  2  3  4  5]
[42  2  3  4  5]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5])
x = arr.view()
x[0] = 31

print(arr)
print(x)
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5])
```

```
x = arr.copy()
y = arr.view()

print(x.base)
print(y.base)
```

```
None
[1 2 3 4 5]
```

```
import numpy as np

arr = np.array([[1, 2, 3, 4], [5, 6, 7, 8]])

print(arr.shape)
```

```
(2, 4)
```

```
import numpy as np

arr = np.array([1, 2, 3, 4], ndmin=5)

print(arr)
print('shape of array :', arr.shape)
```

```
[[[[[1 2 3 4]]]]]
shape of array : (1, 1, 1, 1, 4)
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12])

newarr = arr.reshape(4, 3)

print(newarr)
```

```
[[ 1  2  3]
 [ 4  5  6]
 [ 7  8  9]
 [10 11 12]]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12])

newarr = arr.reshape(2, 3, 2)

print(newarr)
```

```
[[[ 1  2]
  [ 3  4]
  [ 5  6]]

 [[ 7  8]
  [ 9 10]
  [11 12]]]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7, 8])

print(arr.reshape(2, 4).base)
```

```
[1 2 3 4 5 6 7 8]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7, 8])

newarr = arr.reshape(2, 2, -1)

print(newarr)
```

```
[[[1 2]
  [3 4]]

 [[5 6]
  [7 8]]]
```

```
import numpy as np

arr = np.array([[1, 2, 3], [4, 5, 6]])

newarr = arr.reshape(-1)

print(newarr)
```

```
[1 2 3 4 5 6]
```

```
import numpy as np

arr = np.array([[1, 2, 3], [4, 5, 6]])

for x in arr:
  print(x)
```

```
[1 2 3]
[4 5 6]
```

```
import numpy as np

arr = np.array([[1, 2, 3], [4, 5, 6]])

for x in arr:
  for y in x:
    print(y)
```

```
1
2
3
4
5
6
```

```
import numpy as np

arr = np.array([[[1, 2, 3], [4, 5, 6]], [[7, 8, 9], [10, 11, 12]]])

for x in arr:
  print(x)
```

```
[[1 2 3]
 [4 5 6]]
[[ 7  8  9]
 [10 11 12]]
```

```
import numpy as np

arr = np.array([[[1, 2, 3], [4, 5, 6]], [[7, 8, 9], [10, 11, 12]]])

for x in arr:
  for y in x:
    for z in y:
      print(z)
```

```
1
2
3
4
5
6
7
8
9
10
11
12
```

```
import numpy as np

arr1 = np.array([1, 2, 3])

arr2 = np.array([4, 5, 6])

arr = np.concatenate((arr1, arr2))

print(arr)
```

```
[1 2 3 4 5 6]
```

```
import numpy as np

arr1 = np.array([[1, 2], [3, 4]])

arr2 = np.array([[5, 6], [7, 8]])

arr = np.concatenate((arr1, arr2), axis=1)

print(arr)
```

```
[[1 2 5 6]
 [3 4 7 8]]
```

```
import numpy as np

arr1 = np.array([1, 2, 3])

arr2 = np.array([4, 5, 6])

arr = np.stack((arr1, arr2), axis=1)

print(arr)
```

```
[[1 4]
 [2 5]
 [3 6]]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6])

newarr = np.array_split(arr, 4)

print(newarr)
```

```
[array([1, 2]), array([3, 4]), array([5]), array([6])]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6])

newarr = np.array_split(arr, 3)

print(newarr[0])
print(newarr[1])
print(newarr[2])
```

```
[1 2]
[3 4]
[5 6]
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 4, 4])

x = np.where(arr == 4)

print(x)
```

```
(array([3, 5, 6]),)
```

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5, 6, 7, 8])

x = np.where(arr%2 == 0)

print(x)
```

```
(array([1, 3, 5, 7]),)
```

```
import numpy as np

arr = np.array([6, 7, 8, 9])

x = np.searchsorted(arr, 7)
```

```
print(x)
```

```
1
```

```
import numpy as np

arr = np.array([3, 2, 0, 1])

print(np.sort(arr))
```

```
[0 1 2 3]
```

```
import numpy as np

arr = np.array([True, False, True])

print(np.sort(arr))
```

```
[False  True  True]
```

```
import numpy as np

arr = np.array([41, 42, 43, 44])

# Create an empty list
filter_arr = []

# go through each element in arr
for element in arr:
  # if the element is higher than 42, set the value to True, otherwise False:
  if element > 42:
    filter_arr.append(True)
  else:
    filter_arr.append(False)

newarr = arr[filter_arr]

print(filter_arr)
print(newarr)
```

```
[False, False, True, True]
[43 44]
```